

# ASSIGNMENT 6

Textbook Assignment: "Climate and Climatology." Chapter 6, Pages 6-6 through 6-30.

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- 6-1. Which of the following lists represents the climatic zones?
1. Arctic, Antarctic, Polar, Mid-latitudes, Tropical, and Equatorial
  2. Arctic, Polar, Midlatitudes, and Tropical only
  3. Arctic, Temperate, Equatorial
  4. Polar, Temperate, and Tropical
- 6-2. Which of the following factors is most commonly used to limit the extent of each climatic zone?
1. Lines of latitude based on solar (light) zones
  2. Isotherms
  3. Precipitation lines
  4. Lines depicting plant growth differences
- 6-3. Climatic classifiers use the same factors when classifying types of climate.
1. True
  2. False
- 6-4. Which of the following climatic classifiers places a great deal of emphasis on the relationship between precipitation and evaporation?
1. C. W. Thornthwaite
  2. W. Koppen
  3. G. T. Trewartha
  4. Each of the above
- 6-5. Koppen's five climatic types are based on
1. temperature only
  2. precipitation amounts only
  3. the effectiveness of precipitation
  4. the effect of temperature and precipitation on plant growth
- 6-6. Which of the following climatic controls has the greatest effect on climatic elements?
1. Latitude
  2. Ocean currents
  3. Topography
  4. Land and water distribution
- 6-7. Compared to water, approximately how many times faster does land heat and cool?
1. 6
  2. 2
  3. 8
  4. 4
- 6-8. Air temperature contrasts over oceans are relatively minimal between day and night and winter and summer because of
1. water's higher absorption rate of insolation
  2. the subtropical anticyclones' positions
  3. the constancy of sea surface temperatures due to mixing processes
  4. Earth's land and water distribution
- 6-9. The seasonal change in the worldwide temperature gradient is greater in the Northern Hemisphere than in the Southern Hemisphere. Why?
1. The differences in the land and water distribution between the two hemispheres
  2. The Southern Hemisphere's longer summers
  3. The absence of cP air in the Southern Hemisphere
  4. All of the above
- 6-10. Mountains affect which climatic element the most?
1. Wind
  2. Temperature
  3. Precipitation
  4. Cloud cover
- 6-11. Why are climates cooler along west coasts of continents than along east coasts of continents?
1. Prevailing westerly winds
  2. Presence of mountain ranges which impede cold air
  3. Cold ocean currents flow along the west coasts, while warm ocean currents flow along east coasts
  4. Higher albedoes

- 6-12. The infamous fog that invades San Francisco Bay during the summer is caused by
1. upwelling
  2. contrasting temperatures between the Bay and the California current
  3. radiational cooling
  4. warm, moist air being advected over the cold California current
- 6-13. Climatically, the Grand Banks of Newfoundland and the Kamchatka Peninsula of eastern Asia are well known for
1. upwelling
  2. their extensive fogs
  3. extremely cold summers
  4. cyclogenesis
- 6-14. When comparing climates of heavily wooded areas to nearly open areas in the same region, how do the heavily wooded areas differ, if at all?
1. They have lower humidities
  2. The wind speeds are considerably higher
  3. The maximum and minimum temperatures are higher
  4. They will not differ if in the same region
- 6-15. Worldwide climatological records are maintained at which of the following commands?
1. NAVLANTMETOCCEN Norfolk, VA.
  2. COMNAVMETOCCOM Stennis, Space Center, MS
  3. FLENUMOCEANCEN Monterey, CA.
  4. FLENUMOCEANCEN Asheville, NC
- 6-16. Which of the following climatic information is available and produced only upon request?
1. Summary of Meteorological Observations (SMOS)
  2. Cross-Wind Summary
  3. Local Climatological Data Summary (LCD)
  4. Worldwide Airfield Summary
- 6-17. How often is the SMOS updated?
1. Annually
  2. Biannually
  3. Triennially
  4. Every 5 years
- 6-18. A complete listing of climatological references is available in which of the following publications?
1. Climatic publications prepared for Commander, Naval Oceanography Command
  2. Guide to Standard Weather Summaries (NAVAIR 50-IC-534)
  3. Navy Stock List of Forms and Publications, NAVSUP 2002
  4. All of the above
- 6-19. A prospective graduate of AG C-1 has orders to Guantanamo Bay, Cuba. Which of the following publications provides a limited amount of climatology but provides valuable information on local and area weather with regard to this station?
1. *U.S. Navy Marine Climatic Atlas of the World*
  2. *Guantanamo Bay's Local Area Forecasters's Handbook*
  3. *Naval Intelligence Survey*
  4. *Worldwide Airfield Summaries*
- 6-20. Forecaster's guides for data-sparse areas and areas of high naval interest may be available from
1. NAVLANTMETOCCDET Asheville, NC
  2. COMNAVMETOCCOM
  3. Naval Environmental Prediction Research Facility, Monterey, CA
  4. Air Weather Service Environmental Technician Application Center
- 6-21. In two months, your ship is scheduled to embark on a 6-month Mediterranean deployment. The meteorological officer wants climatic data on each port that is scheduled to be visited. What step(s) do you take to get this data?
1. Task the nearest NAVLANTMETOCFAC
  2. Draft a request for climatic support to COMNAVMETOCCOM through your chain of command
  3. Use your ship's climatic publications; then, if required, request assistance from the nearest Naval Oceanography Command activity
  4. Request the data from COMNAVMETOCCOM Stennis, Space Center, MS

- 6-22. Climatology should always come into play in operational planning that extends beyond the range of forecasting techniques.
1. True
  2. False
- 6-23. Which of the following characteristics is associated with maritime climates?
1. Minimal cloudiness
  2. Little precipitation
  3. Small diurnal temperature range
  4. Large annual temperature range
- 6-24. The amount of radiant energy absorbed by the sea when the Sun is directly overhead is approximately what percent?
1. 3
  2. 6
  3. 25
  4. 91
- 6-25. Which, if any, of the following statements is characteristic of the interchange of radiation between Earth's oceans and the atmosphere?
1. The interchange is a short-wave radiation exchange
  2. The interchange is primarily dependent on the sea-surface temperature and the amount of water vapor in the atmosphere
  3. The interchange is solely dependent on the time of day and season of the year
  4. None of the above apply
- 6-26. Convective activity is most likely to occur when
1. warm air moves over cold ocean waters
  2. cold air moves over warm ocean waters
  3. warm air moves over warm ocean waters
  4. cold air moves over cold ocean waters
- 6-27. When is evaporation of Earth's surface waters most intense?
1. When the vapor pressure of the atmosphere is greater than that of the surface water
  2. When the vapor pressure of the atmosphere and the surface water coincide
  3. When the vapor pressure of the surface water exceeds the vapor pressure of the atmosphere
  4. When the air temperature exceeds the water temperature
- 6-28. Oceans are an abundant source of moisture, but precipitation occurs much more frequently over land than over the oceans for which of the following reasons?
1. Orographic influences
  2. Stronger temperature contrasts
  3. Greater vertical mixing
  4. All of the above
- 6-29. Atmospheric soundings show that a layer of moist air exists in the tropics. During favorable weather, what is the mean depth of this layer?
1. 2,000 to 3,000 feet
  2. 3,000 to 5,000 feet
  3. 5,000 to 8,000 feet
  4. 5,000 to 12,000 feet
- 6-30. Within the temperate latitudes of the North Atlantic and Pacific Oceans, where are the most active frontal systems found?
1. Along the west coasts of North America and Asia
  2. Along the east coasts of North America and Asia
  3. Along the northern boundary of the subtropical high-pressure systems
  4. Along the eastern boundary of the subtropical high-pressure systems
- 6-31. In winter in the North Atlantic Ocean, what is the average number of days that passes between polar outbreaks?
1. 3 1/2
  2. 5 1/2
  3. 3
  4. 4
- 6-32. What are cyclone families?
1. Polar outbreaks
  2. A series of midwestern tornadoes
  3. The fronts associated with polar outbreaks
  4. A series of cyclonic waves that form along the polar front
- 6-33. Which of the following occurrences is synonymous with the splitting of the Pacific subtropical high in winter?
1. A more vigorous polar-front off the Asiatic east coast
  2. Severe cyclones in the Gulf of Alaska
  3. Two polar fronts coexist in the North Pacific
  4. The northeast trade winds are reinforced

- 6-34. What is the primary flight hazard associated with mT air on the east side of a subtropical high?
1. Coastal fog
  2. Turbulence
  3. Thunderstorms
  4. Heavy rain and low ceilings
- 6-35. Which, if any, of the following factors is the primary controller of Arctic weather and climate?
1. Land-sea-ice distribution
  2. Mountain barriers
  3. Insolation
  4. None of the above
- 6-36. During the Arctic summer, the distinction between Arctic and polar air masses almost disappears.
1. True
  2. False
- 6-37. Which of the following statements is correct concerning Arctic air masses in winter?
1. Humidity is high
  2. Cloudiness and precipitation increase
  3. Temperatures are usually between 0° and 10°C
  4. A large temperature inversion exists in the lower few thousand feet over land
- 6-38. Which of the following statements is characteristic of the flying weather in the Arctic?
1. It is worst during the transition period between the seasons
  2. Fog is a major problem over land in summer
  3. Low ceilings and visibilities are most frequent in winter
  4. High winds, blowing snow, and turbulence are more frequent in summer
- 6-39. The summers of the Canadian Archipelago are best classified as
1. hot and long
  2. cold and long
  3. cool and short
  4. warm and short
- 6-40. Strong surface winds are most likely to occur within the interior of the Arctic region during which of the following seasons?
1. Winter
  2. Fall and winter
  3. Spring and fall
  4. Summer and fall
- 6-41. Which of the following annual precipitation amounts is representative of Arctic coastal areas and the Arctic ice pack?
1. 3 to 7 in.
  2. 5 to 15 in.
  3. 8 to 17 in.
  4. 10 to 20 in.
- 6-42. Ice fog is most likely to occur when the air temperature is around how many degrees Celsius?
1. 0
  2. -15
  3. -30
  4. -45
- 6-43. Diamond dust is a name that applies to
1. Arctic smoke
  2. Arctic sea smoke
  3. Arctic haze
  4. ice fog
- 6-44. In the Arctic, the Sun, Moon, and other objects near the horizon often appear distorted. Why?
1. Aurora borealis
  2. Inversion induced mirages
  3. The highly transparent air
  4. Whiteouts
- 6-45. In addition to equal amounts of skylight and reflected light, what other conditions are necessary to bring about a whiteout?
1. Broken snow cover, and clear sky
  2. Broken snow cover, and an overcast sky
  3. Unbroken snow cover, and clear sky
  4. Unbroken snow cover, and a uniformly overcast sky
- 6-46. The lowest recorded temperature in the world was observed in
1. Siberia
  2. Greenland
  3. Canadian Archipelago
  4. Antarctica

- 6-47. Which of the following areas of the United States is favorable for the development of storm (low-pressure) centers?
1. Ohio Valley
  2. Tennessee Valley
  3. Central Idaho
  4. Great Plains
- 6-48. Which of the following regions of the United States has a cold, dry climate in winter and a warm, dry climate in summer?
1. Central Plains
  2. Intermountain West Central
  3. Southwest Pacific Coast
  4. Southeast and Gulf States
- 6-49. The chief flight hazard in the southwestern desert and mountain area of the United States is
1. high level turbulence
  2. spring and summer thunderstorms
  3. haze
  4. dust devils
- 6-50. Tornadoes are a climatic feature of which of the following areas of the United States?
1. Central Plains
  2. Southeast United States
  3. Intermountain west central area
  4. Southwest Pacific coast area
- 6-51. Why is the southeast and Gulf states area of the United States an especially difficult area for making forecasts?
1. Stagnating frontal systems, fog, and Gulf stratus
  2. Air-mass thunderstorms
  3. Rapidly moving squall lines
  4. Various combinations of all the above reasons
- 6-52. The influx of maritime air into western Europe results in
1. low-temperature extremes
  2. infrequent precipitation
  3. high humidity
  4. mostly clear skies
- 6-53. Which of the following European areas experiences the least amount of change in its temperature extremes between summer and winter?
1. European Atlantic coast
  2. The Rhine Valley
  3. Eastern Europe
  4. The northern Alpine region
- 6-54. The Asian continent is dominated by
1. high pressure in winter and low pressure in summer
  2. low pressure in winter and high pressure in summer
  3. low pressure year round
  4. high pressure year round
- 6-55. If a relatively dry excursion into northeast South America is planned, which month would be most suitable?
1. January
  2. June
  3. October
  4. November
- 6-56. Southern Chile experiences a climate similar to that experienced by what area of the United States?
1. Northwest coast
  2. Southwest coast
  3. Northeast coast
  4. Southeast coast
- 6-57. Why do the climatic zones of Africa lack sharp distinction?
1. Africa is an island continent
  2. There are no prominent mountain ranges in Africa
  3. In Africa, the zones are controlled by the ITCZ
  4. Africa is under the influence of only one air mass
- 6-58. Which of the following climatic elements is the most important in Africa?
1. Temperature
  2. Wind
  3. Precipitation
  4. Cloud cover

- 6-59. The sub-equatorial region of Africa experiences marked seasonal rainfall. What five-month period is associated with the rainy season?
1. Jan - May
  2. Apr - Aug
  3. Aug - Dec
  4. Nov - Mar
- 6-60. Climatically, where is the wettest region of Africa?
1. North central
  2. Equatorial
  3. Southwestern
  4. Southeast coastal
- 6-61. What is the average variation in maximum temperatures in the interior of Australia between summer and winter?
1. 15°F
  2. 22°F
  3. 28°F
  4. 31°F
- 6-62. What portion of Australia is under the influence of mT air?
1. Northern 1/3
  2. Eastern 1/3
  3. Southern 2/3
  4. Western 3/4
- 6-63. Climatically, southern New Zealand is wetter than northern New Zealand.
1. True
  2. False